Breast Cancer: an Occupational Disease

M Yadollahie

Breast cancer has just been considered as an occupational disease in Denmark.\textsuperscript{1} Shift work have a negative impact on health, work functioning, and social life.\textsuperscript{2-4} Recent published studies showed that working on rotating night shifts was associated with a higher incidence of subsequent breast cancer among the female nurses and flight crews.\textsuperscript{5,6}

Many factors have association with the development of breast cancer. Some of these risk factors cannot be changed; those included age, gender, family history of breast cancer, ethnicity and genetic build up, obesity, past history of alcohol use, history of childbirth, use of diethylstilbestrol (DES), and history of exposure to ionized radiation. Some other variables such as socioeconomic status may be modified.\textsuperscript{4,7}

Abnormal photic stimuli, and altered rest-activity cycles with advancing age have been linked with some endocrine disturbances.\textsuperscript{8} The hypothalamic-pituitary-adrenal axis dysfunction, interrupted diurnal cortisol patterns, carbohydrate metabolism imbalance, elevation of sympathetic nervous system activity and thyroid dysfunction have also been associated with graveyard shift work.\textsuperscript{8} After 10 years working at night, the risk of developing breast, prostate and colorectal cancer increases significantly.\textsuperscript{9} An increased risk associated with duration of light at night work, quality of sleep, number of times a subject got up during the night and turned on a light were also reported in shift workers.\textsuperscript{1}

Exposure to light at night suppresses normal nocturnal increase in melatonin—a hormone with antiproliferative effect. Loss of circadian variation in blood cortisol levels might increase the exposure to a higher level of estrogen in women which in turn can increase the risk of breast and intestinal cancers.\textsuperscript{10} Shift work would also cause a higher rate of prostate cancer in men.\textsuperscript{9} The wavelengths of light in the blue region of the visible spectrum (e.g., fluorescent light which is commonly used in various environments with artificial light) have the highest potency to decrease in melatonin levels.\textsuperscript{11}

Permanent night shift workers adopt a new circadian rhythm than those who rotate between day and night shifts. Melatonin has less reduction among individuals working on permanent night shifts than those who work on rotating night shifts. Usually, those who work night shifts have a lower socioeconomic status and may have less concerns about their health status; they also smoke more often than women who did not work night shifts.\textsuperscript{12}

Generally, women working night shift were elder, have a higher emotional stress and smoke more often than those who had never worked on graveyard shifts. Other factors, such as taking hormone replace...
ment therapy, smoking, diet, obesity, alcohol use, or exercise and not giving birth, correlate with shift work to increase the risk of breast cancer.\textsuperscript{11,13}

Shift work also has short- and long-term adverse effects on the health. Short-term effects included fatigue, not feeling well at work, decreased quality of life, poor pregnancy outcomes, and increased risk of work injury. Long-term outcomes are less clear and include coronary heart disease, gastrointestinal and psychiatric disorders.\textsuperscript{9,14}

Overall, the association between night shift work and breast cancer risk is uncertain and more study and meta-analysis are required.

\textbf{Conflict of Interest:} None declared

\textbf{References}


